

Junior Refuge Manager Activity Book

San Francisco Bay National Wildlife Refuge Complex

- Don Edwards San Francisco Bay National Wildlife Refuge
- Antioch Dunes National Wildlife Refuge
- Ellicott Slough National Wildlife Refuge
- Farallon National Wildlife Refuge
- Marin Islands National Wildlife Refuge
- Salinas River National Wildlife Refuge
- San Pablo Bay National Wildlife Refuge

Name: _____

San Francisco Bay National Wildlife Refuge Complex is part of the National Wildlife Refuge System that protects over 555 refuges all over the United States of America. This network of lands and waters is the largest in the world that is set aside for fish, wildlife, and plants. President Theodore Roosevelt designated the first national wildlife refuge in 1903, Pelican Island, located in Florida. Since its start, the refuge system has expanded to include millions of acres.

Managing a wildlife refuge takes a lot of work and dedication. To help both the public and wildlife, staff at a refuge work with many different areas. Would you like to work at a National Wildlife Refuge? There are many jobs to do, such as a biologist, an environmental educator, or a refuge manager. The first step is to learn about wildlife, their habitat, and how we can protect them. Become a Junior Refuge Manager today!

As a Junior Refuge Manager, you can protect the refuge and other protected habitats by teaching and following "Leave No Trace." These guidelines will help keep the refuge's wildlife happy and the land beautiful.

- Plan ahead and prepare: Check for trail closures or other alerts before you head out.
- Travel on durable surfaces: Stay on the trails.
- Dispose of waste properly: Throw out trash in trash can or pack it out with you.
- Leave what you find: Take only pictures and leave only footprints.
- Respect wildlife: This is their home, please do not feed or touch them.
- Be considerate of other visitors: Be respectful of your noise level and help others have a great experience too!

Activity Book:

If you are 4-6 years old, complete 3 activity pages.

If you are 7-9 years old, complete 5 activity pages.

If you are 10+ years old, complete 8 activity pages.

When you have finished the activity pages:

- Take your completed activity book to the Fremont Visitor Center to receive your Junior Refuge Manager Badge
- *Or*, mail a copy of your completed activity pages to:
Don Edwards San Francisco Bay National Wildlife Refuge
Junior Refuge Manager Program
1 Marshlands Road
Fremont, CA 94555

*Be sure to give us your address so we can mail your badge and certificate to you!

Note to parents: This is a family activity. You are encouraged to join your child as they complete the activities in this book. Don't worry about answering all of the questions correctly. Appreciate the beauty of the refuge and share your feelings as you explore. Your enthusiasm shows and makes for a wonderful experience!

Check out the Visitor Center!

There is so much to see and do at the San Francisco Bay National Wildlife Refuge. We would love it if everyone could see everything, but it is not possible, so that's why we put together the exhibits and movies in the visitor center. These resources help us to see and learn about topics we might not have time to explore.

For this activity, you will need to watch a video or explore the exhibit and wildlife kiosk at the visitor center. Finish the sentences below for the activity you choose. Ask the person at the information desk if you need help!

Video

I watched a video and the name of it was

One interesting thing I learned about the San Francisco Bay National Wildlife Refuge Complex or the National Wildlife Refuge system was

Another fact I learned in the video was

Wildlife Kiosk and Exhibit

I explored the wildlife kiosk and the exhibit in the visitor center and one interesting thing I learned about was

Another fact I learned from the wildlife kiosk and the exhibit was

Salt Marsh Scavenger Hunt

Grab a trail map and head out on one of the many trails here at the refuge. Search for the items on the list and place a check by each one found. Remember the Leave No Trace rules!

- ☐ Pickleweed
The endangered salt marsh harvest mouse feeds upon this plant
- ☐ Boardwalk or Bridge
These are built to help us see the marsh closer and to protect the marsh plants
- ☐ Bird Singing
Birds sing to defend their territory or to find mates
- ☐ Dodder
The orange parasitic plant that feeds off the pickleweed, but doesn't hurt the pickleweed
- ☐ Slough
Looks like a river, lets water in and out of the bay with the tide changes
- ☐ A piece of litter
Help the refuge and throw it away!
- ☐ Levee
Made of mud and are built to make salt ponds; biologists use them to get closer to different wildlife
- ☐ A bird in the water
Many birds here find food in or near the water
- ☐ Mudflat
When the slough goes out with the tide, it leaves open muddy areas where many creatures find food

Refuge Word Search

P T S Y S B B Q Z H W C S P O N Q S
 B A D R V A J L S F F R D H K Z C M
 N Z C S E Z L R B T W I R Y M U I Y
 T A T I B E A T I G R U A T U X I T
 T S E U F M T B P E F S W O D Q L V
 W Y B C T I Z N S O E X D P F S J E
 Z J Q L O U C T U A N B E L L X G U
 V P A N G Y O F S L B D N A A X V F
 L S K Q D R U O L E O H O N T S U J
 G H U K A K N B V Y H V D K X L I E
 F U Q T K S M P Z N A Z O T S T G S
 F U I P T K T P S A E W V O V M O E
 N O T K N A L P O O Z L A N Z O Z D
 N P O L L U T I O N H F Q Y T P U I
 E N D A N G E R E D S P E C I E S T
 N M L J H G U O L S W Q O M M C L K
 D Z R F I W P U T G Y R N Y C P Y H
 I O P A I D I V F X W W L J K V E T

DON EDWARDS- The name of the congressman who helped established the Don Edwards Refuge in 1974

ENDANGERED SPECIES- a species facing a high risk of extinction (end of the species forever)

MUDFLAT- a habitat affected by tides that looks barren but actually is abundant in life

OCEAN- large body of salt water; Pacific Ocean is closest to the refuge

PACIFIC FLYAWAY- north to south route of travel for migratory birds

PHYTOPLANKTON- tiny floating plants

POLLUTION- introduction of contaminants into a natural area that causes bad changes

RESTORATION- returning the habitat back to the original state or as close as possible

SALT MARSH- a habitat affected by tides where salt tolerant plants live and are the boundary between open water and land

SALT POND- habitat for the production of salt. Salt ponds are manmade

SEASONS- spring, summer, fall, and winter each offer different bird species to view

SLOUGH- area for water to flow in and out of the bay with the tide changes

TIDES- the rise and fall of sea levels

VOLUNTEERS- they help keep the refuge running by giving programs, sitting at the information desk, pulling weeds, planting native plants, and picking up trash

ZOOPLANKTON- tiny floating animals

Bird Watching

Bird watching is a great recreational activity that can be a lifelong hobby. Many people come to the refuge to see endangered or interesting migratory birds. Depending on the season you may spot some special birds.

Grab binoculars and a refuge bird list from the visitor center and head out to a trail. Keep track of what you see and what they are doing!

Common birds found at San Francisco Bay National Wildlife Complex:



Mourning Dove



Black Phoebe



California Gull



Canada Goose



Mallard



Great Egret



Double-crested Cormorant



Red-tailed Hawk



American Avocet

Habitat Detective

Refuge managers maintain and protect the habitat that plants and animals use. A habitat must contain enough food, water, shelter, and space for the plant or animal living there. There are five different types of habitat at the refuge, mudflat, salt marsh, salt pond, vernal pools, and uplands. Choose one of the habitats to investigate and write down your findings. Remember to stay on the trail!

1. What does the habitat look like?
2. Describe all the plants you see. Name or draw any animals you see or hear.
3. What do you think the animals eat in the habitat?
4. Where do you think the animals take shelter?
5. Do you think all the plants and animals have enough space? If not, how do you think we could help them get more space?

Nature Journal

Many scientists use a notebook to keep track of weather conditions, data they collect, and anything they see or find that is interesting. As you are exploring the refuge, take some time to write down some notes and observations. Stop two times at different places to record your notes.

Date _____ Weather Conditions _____

Location where notes were taken _____

What do you hear? Can you smell anything? Draw a picture of a plant or animal you see. Record anything else interesting.

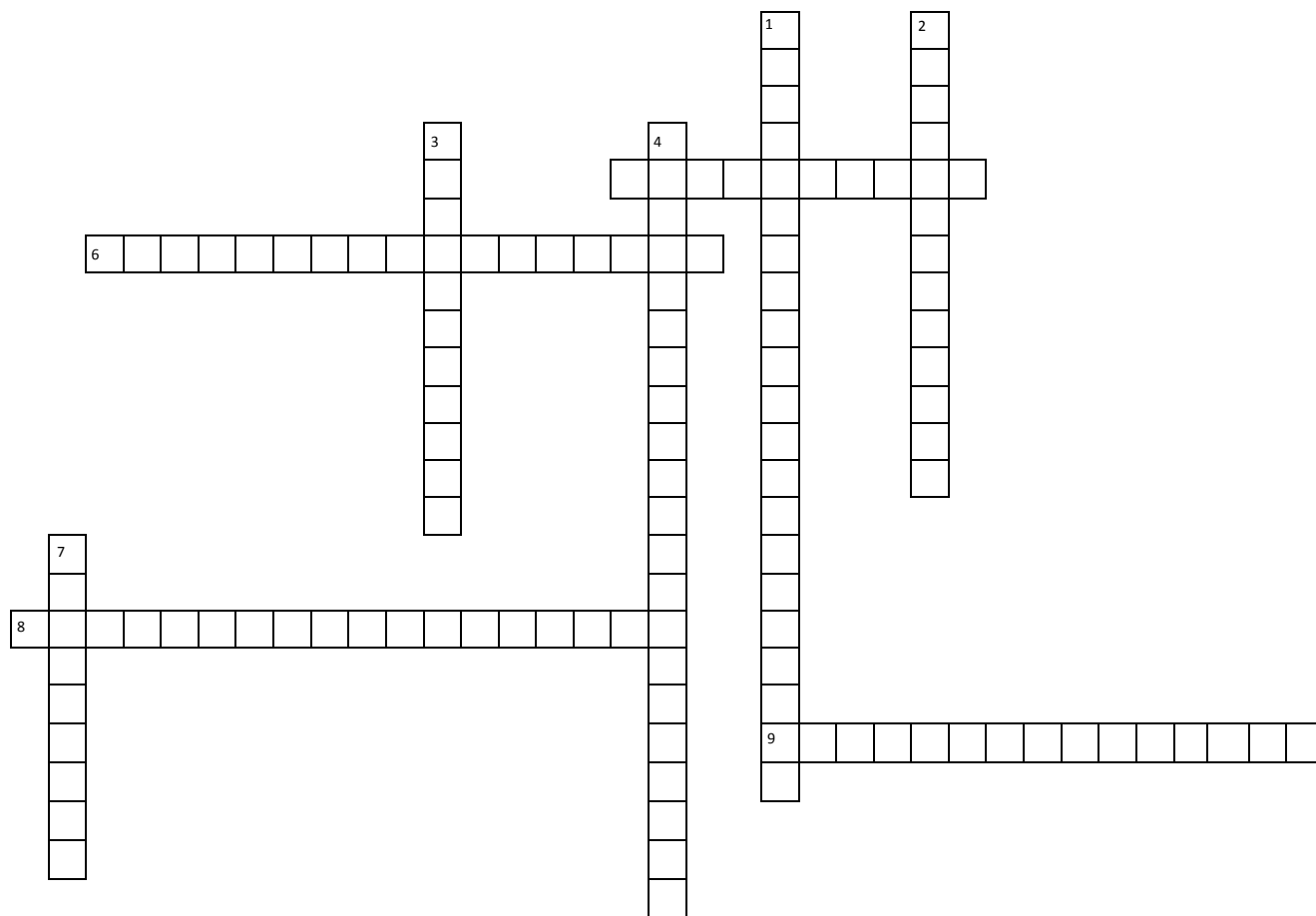
Date _____ Weather Conditions _____

Location where notes were taken _____

What do you hear? Can you smell anything? Draw a picture of a plant or animal you see. Record anything else interesting.

Refuge Career Puzzle

Fill out the crossword puzzle from the clues and word bank below. These are jobs that you might want to have when you grow up!



Across

5. Gives programs about the refuge and animals to visitors
6. Coordinates special events and programs for visitors
8. Works with computer technology that the refuge uses
9. Helps other staff by doing paperwork, answering phones, and managing the office

Down

1. A teacher who teaches students about the refuge
2. Guides and supervises all the people that work on the refuge
3. Repairs buildings and equipment on the refuge
4. Enforces park rules and protects the plants and animals that live here
7. Learns and studies the plants and animals in the refuge

Biologist, Recreation Planner, Park Ranger, Computer Specialist, Maintenance, Office Assistant, Environmental Educator, Law Enforcement Officer, Project Leader

Salt Marsh Restoration

“Restoration” is a big word for returning something back to how it was in the beginning. Many wildlife refuges participate in projects to restore habitats back to how they were before humans changed them. At the San Francisco Bay National Wildlife Refuge Complex, we have a large project to create more salt marsh in the bay area. Many people built buildings and polluted the marsh before the wildlife refuge was here. Over 85% of the original salt marsh in the Bay Area had been destroyed by 1980. The salt marsh not only provides habitat for animals, but also protects humans. The marsh absorbs flood water and helps reduce toxins and chemicals in the water.

Draw a picture of what you think the salt marshes looked like before the restoration project began and a picture of after the project.

Before

After

What are some things that might have destroyed the marsh?

What are some things that helped bring back the marsh?

Stewardship Project

Now that you have learned all about the San Francisco Bay National Wildlife Refuge Complex and what it means to the plants and animals that live here, you have one more project to complete. Being a steward of something means you take care and protect it. We want you to do something to make the refuge a better place for the plants, animals, and future visitors who come here.

Here are some ideas for a project:

- Pick up 5 pieces of trash
- Give a short ranger program to your family
- Remind someone kindly about “Leave No Trace” if they have forgotten
- Think of your own project!

Write down what you did below. Why was your project important to people, plants, and animals?



Junior Refuge Manager Pledge

As a Junior Refuge Manager, I, _____ promise to learn and explore as much as I can about nature and the National Wildlife Refuge System. I promise to protect and preserve the wildlife and plants and to help keep the water, land, and air clean. I will share what I have learned with my friends and family so they can help protect the refuge and our natural resources too.

This certifies that

Has successfully completed the

Junior Refuge Manager Program

At

Don Edwards San Francisco Bay National Wildlife Refuge



Signed

Date

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Fremont, CA 94555
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Email: de.vsintern@gmail.com
www.fws.gov/refuge/don_edwards_san_francisco_bay
Follow us on Facebook:
San Francisco Bay NWR Complex

U.S. Fish and Wildlife Service
1-800-334-WILD
www.fws.gov



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